matter, either unscientific, or are prevented, by some of their orthodox leaders from being scientific, in what should be an elementary matter of science, namely the accurate ascertainment and the intelligible record of the sounds of the English language, and of the other languages used in science. They are thus hostile to the sciences of philology and phonetics; and some openly proclaim their hostility.

If any of your correspondents who may do me the honor to dissent from these views will attempt to state in SCIENCE (and I am sure that the editor would be willing to permit the experiment) the actual facts about the words which Professor Arthur mentioned, namely, *fungus, fungous,* and *fungoid* (or any other group of words offering like conditions); to state exactly, in print, the pronunciation which those words have or should have; to state exactly what is or what should be the plural of *fungus;* to state exactly the nature of the difference between *funguses* and *fungusses;* to state exactly the different pronunciations of *fungi;* to state also whether the word so spelled is Latin or English, and whether it is Latin or English in all its pronunciations, or in one—if any one will try to do this, and succeed in doing it without recourse to the abhorred science of philology, and the despised "fad" of phonetics, I should like to see the result.

Even in the much simpler matter of a modernized spelling of English, we find the scientific journals holding aloof from the scientific view, and clinging to an unscientific and medieval spelling, while, nevertheless, in their columns we find frequent jibes or jabs at other medieval superstitions, and at other popular errors.

Yet nearly one fourth of the men who are recorded in Dr. Cattell's biographic dictionary, "American Men of Science," in the first edition, signed a card agreeing to use some simplified spellings, and thereby gave the idea the value of their approval. No doubt they still cherish the same sentiments. In fact, some of them cherish these sentiments so fondly that they are wholly unwilling to part with them, or to share them with the public. So they wrap themselves in their intellectual integrity, put over that the cloak of scientific orthodoxy, and go about disguised as harmless men. And the directors of scientific societies and institutions sit and do likewise. Then they arise and print pretty things about science and progress.

And longer should I sing, but with a frown the editor, impatient, rises. Having thus laid myself open to a lapidation of my meter (which some scientific gents *will* spell "metre," or die in the attempt), not to say of my orthographic orthodoxy, I blush and drop my sling—before I smile a sickly smile and curl up on the floor.

CHARLES P. G. SCOTT

SCIENTIFIC BOOKS

Gas Analysis. By L. M. DENNIS, Professor of Inorganic Chemistry in Cornell University. New York, The Macmillan Co., 1913. Pp. 434. Price $2.10 net.

This book may perhaps be described as the American Hempel. It is based upon the translation of Hempel's last edition, but extensive additions have been made by the author. The reviewer has always considered the plan of publishing researches in a text-book open to question, even though this adds materially to the value of the book to the investigator. It would seem better to make them much more widely known by having the researches appear in a periodical.

It is fair to expect in a work of its size that it should be encyclopedic and that the latest work should be included. No mention however is made of Uehling's automatic apparatus for analyzing chimney gas; of the Sargent gas calorimeter; of Elliott's gas apparatus, which is probably the most widely used of any for illuminating gas; of Hinman-Jenkins's method for total sulphur; of Crafts's method for purifying mercury; of the excellent work of Burrell and others of the Bureau of Mines in analyzing mine gases; of the detection of carbonic oxide by birds and mice; of the absorption of hydrogen by palladium chloride; of the practical application of chimney-gas analysis and of the calculations involved.

It is difficult to see in a work devoted exclusively to gas analysis why nearly a chapter should have been given to the heating value of solid fuel; or why the practically obsolete Honigmann gas burette should be described; or why the method of Drehschmidt-Hempel for total sulphur—which is almost never used in this country—is included.

One can not help being struck by the way in which reference has been avoided to American apparatus, and to a lesser degree to American work in this field. For example, Fig. 26 is of a German wet gas meter with the information that it can be obtained from Elster of Berlin! This extreme conservatism or love for German apparatus leads the author still to use the form of sulphuric acid pipette (p. 247) which is slow and may give rise to inaccurate results; to employ the expensive and clumsy double absorption pipette (p. 57) which is difficult to fill and empty; to fasten the gas pipettes with plaster of Paris (p. 54) into their fixed iron supports, instead of using screw clamp holders or a wax that can be melted and a movable collar which allows pipettes of almost any dimensions to be employed; and finally to say (p. 85) that the rubber protecting bulbs for the Orsat pipettes are a "drawback" or "rapidly deteriorate"—which those of German make certainly do; had he used those of good American manufacture he would have had no trouble. It was shown years ago how all these difficulties could be avoided and experience with hundreds of students has confirmed the methods then recommended.

In spite of these defects the book has many excellent features. Chapter XI., on the calculations involved in the combustion of gases, is especially good, as is also the treatment of ozone and carbonic oxide. The chapter on acetylene is very complete. Among new apparatus is mentioned the gas refractometer and rotameter, and also some gas absorption bottles; among new methods may be noticed the determination of hydrogen by colloidal palladium and of oxygen by sodium hyposulphite. The book is particularly valuable in research or to the experienced man.

A. H. GILL

Mechanism. By ROBERT MCARDLE KEOWN, B.S., Assistant Professor of Machine Design, University of Wisconsin.

Professor Keown has attempted in this book to give a brief treatment of the subject of mechanism in such a way as to furnish material for half a school year's work of six hours per week partly in the class room and partly in the drafting room. The book contains little that is new in the way of subject matter covered and there is much similarity to other and older text-books in the general method of handling certain parts of the subject. The order in which the various mechanisms are considered is radically different from that usually followed and impresses one at first as being rather questionable, although the author seems to have found it satisfactory in his own teaching.

Chapter I. gives the usual discussions and descriptions of motion, velocity, etc., most of which are well stated. The student is then plunged at once, in Chapters II. to V., into the consideration of link work with all its intricacies, so puzzling to the student whose imagination has not yet been trained sufficiently to enable him to readily grasp this rather difficult part of the work.

Chapter VI. presents a fairly thorough and clear treatment of the subject of cams and is particularly well illustrated with a large number of diagrams and pictorial drawings.

Chapters VII. and VIII. treat the subject of gearing both for parallel and non-parallel shafts. The treatment is clear, with considerable practical information and a number of good illustrations.

Very little attention is given to the important matter of trains of gears. A short chapter is devoted to connection by means of belts, chains, and ropes, and another short chapter to various mechanisms for giving intermittent motion. The book contains a large number of illustrations, many of which are exceptionally good. A number of problems are given at the end of each chapter, adapted both for class room work and for solution on the drawing board. These form a valuable part of the book.

W. H. JAMES